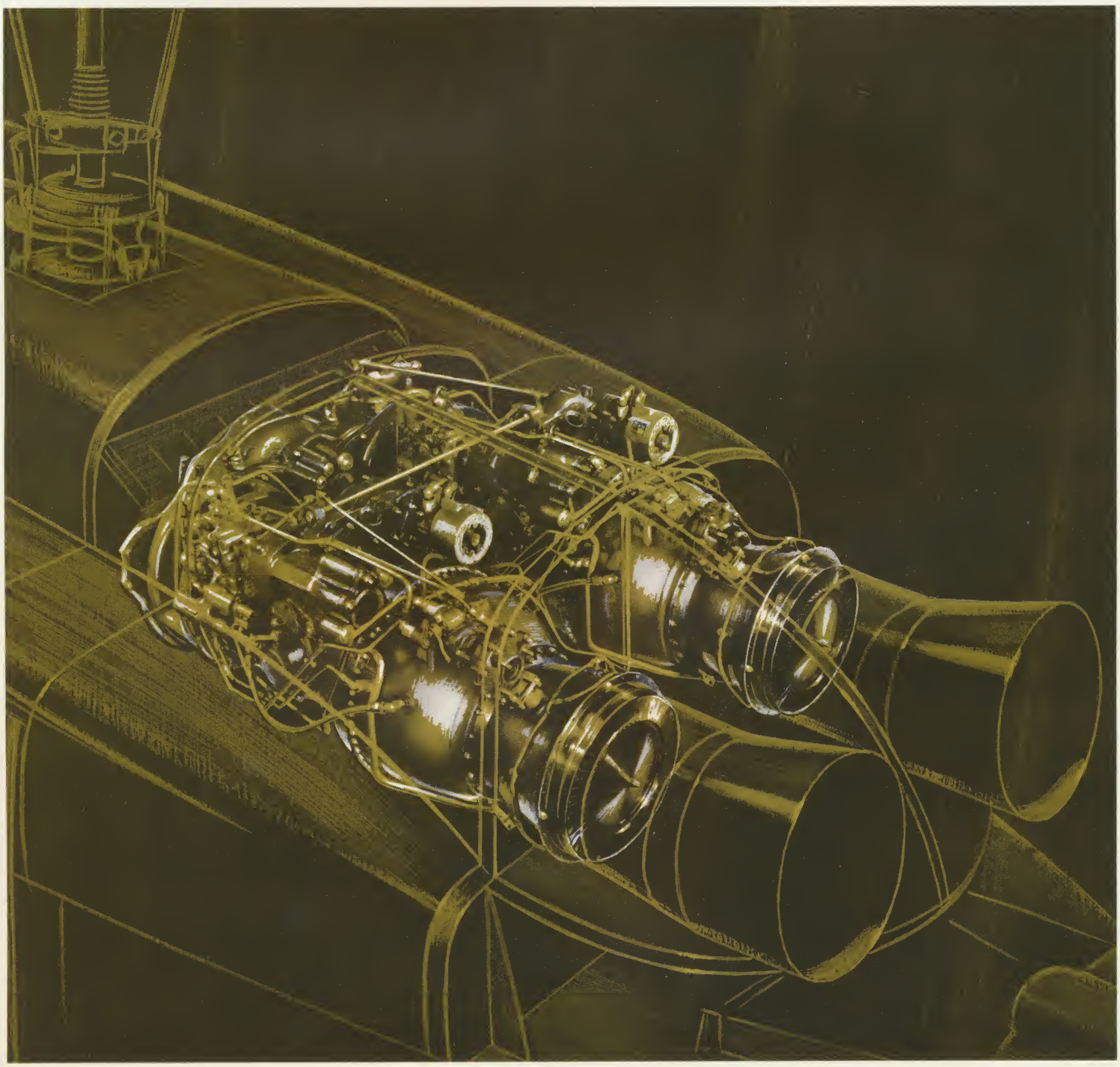
CAE

Continental T67-T-1
1540 Horsepower
Twin Turboshaft Powerplant



T67 TWIN / ADVANCED HELICOPTER POWER

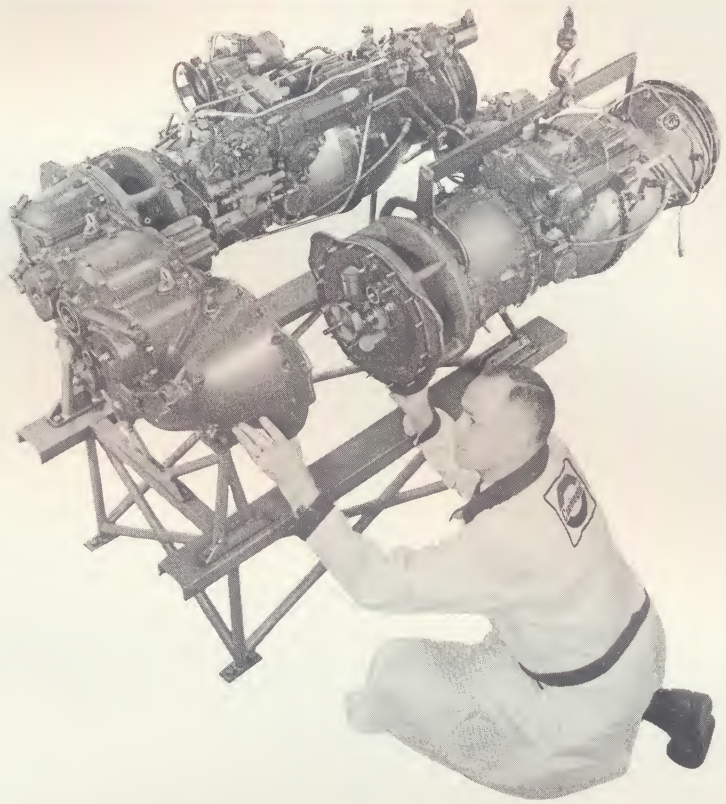
Continental's new T67-T-1 powerplant assures greater safety, better economy, and offers the simplest twin engine operation of any helicopter powerplant available today. The tremendous advantages for helicopter operation inherent in this new unit make it the logical choice to power today's military helicopters.

The advanced transonic compressor utilized provides a pressure ratio of 7.5 to 1 in only three stages. The well-proven Continental "slinger" fuel injection system used in the engines has actually operated on fuels ranging in viscosity from aviation gasoline to Bunker "C". The most unique feature is the completely automatic power sharing system that maintains power balance between the engines and increases power from the remaining engine in the event of single engine failure.

These advanced engine features mean improved personnel safety and significant reduction in logistical support. Use of smaller components in the T67 provides lower inertia, resulting in easier starting with reduced electrical power and faster engine response to changes in load demand.

The T67 has completed a 50-Hour Pre-Flight Rating Test, and has logged over 70 hours flight testing in a UH-1D helicopter. Aircraft installation was easily accomplished with no changes in major aircraft structures. This system provided excellent demonstration of improvements in flight safety and aircraft capabilities with only one engine of the twin operating. Official flight evaluations were conducted by the Army, Navy and Air Force.

IMPROVED LOGISTICS and MAINTAINABILITY



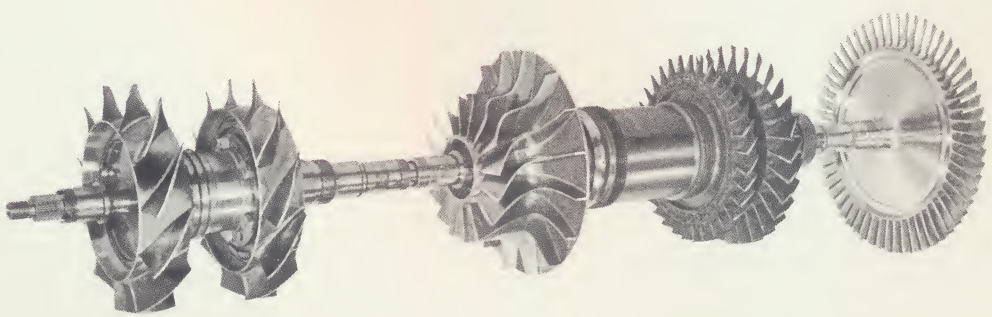
In designing the T67, Continental considered carefully the level of facilities and personnel available at the ultimate point of use. Maintainability and logistical features of the design greatly simplify servicing and support, even under adverse field conditions or at sea.

Components of the two engines are identical for complete interchangeability. A very important advantage of a helicopter equipped with the T67 is its ability to fly long distances on single engine power to a major repair base for engine repair or replacement. This would eliminate the need for expensive inventories and maintenance of personnel at all advanced operating bases.

The small size and light weight of the individual engines facilitate single engine replacement, as well as handling and storage. Replacement of an engine requires removal of only 16 bolts from a single flange and disconnection of the fuel and lubrication lines, governor linkage and one rear mount.

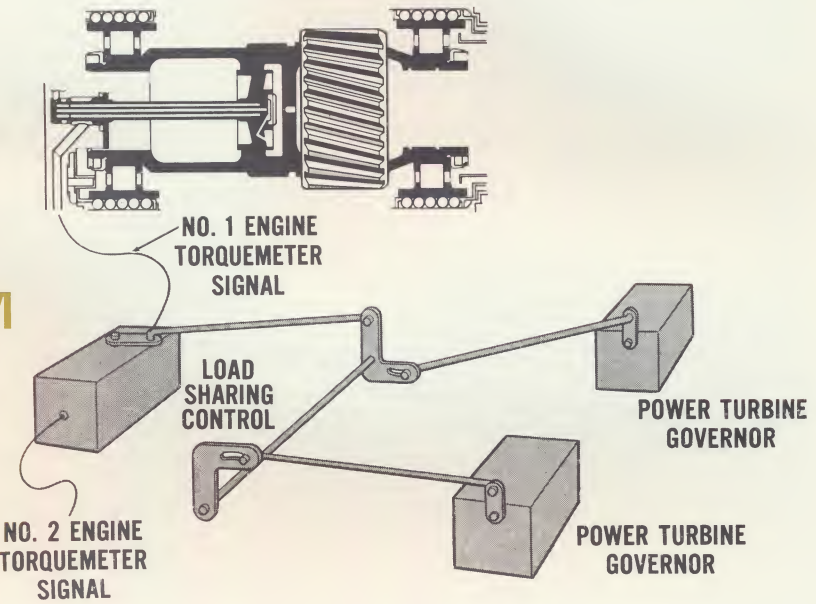
Maintainability characteristics are excellent, with the controls and accessories located on top for easy accessibility.

The rugged design of the compressor blading is apparent in the rotor illustration. Tests have demonstrated outstanding resistance to foreign object damage. The long chord blades also provide maximum resistance to sand and dust erosion.



COMPLETELY AUTOMATIC POWER MANAGEMENT

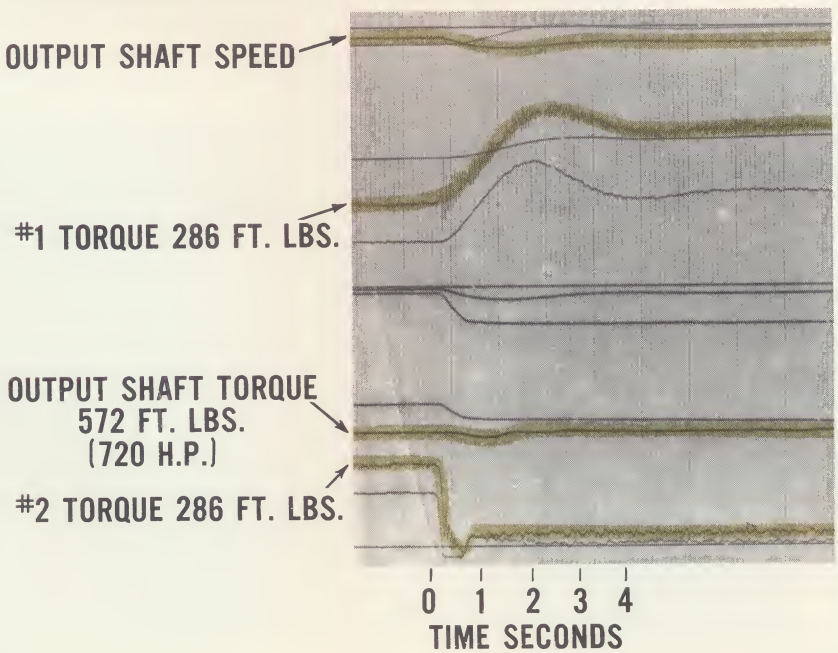
TORQUEMETER AND LOAD SHARING SYSTEM



The heart of the automatic power sharing system is the simple, yet extremely accurate, torquemeter developed by Continental. Operation of the system is hydraulic and mechanical—no electronic black boxes. Its simplicity eliminates the need for any special matching techniques when replacing individual engines.

A hydraulic signal is transmitted by the torquemeter to a power balance piston. The balance piston acts on a set of linkages to adjust the power turbine governor of the low engine to increase its power. Should power be lost on either engine, the system immediately and automatically increases the power output of the remaining engine to meet the load demand.

The chart below is a transient recording of actual test data, demonstrating the effect on power output when the throttle is "chopped" to simulate a sudden engine-out condition. Without any corrective action by the pilot, the chart shows a momentary drop of output torque of only four percent which was automatically corrected in less than two seconds.

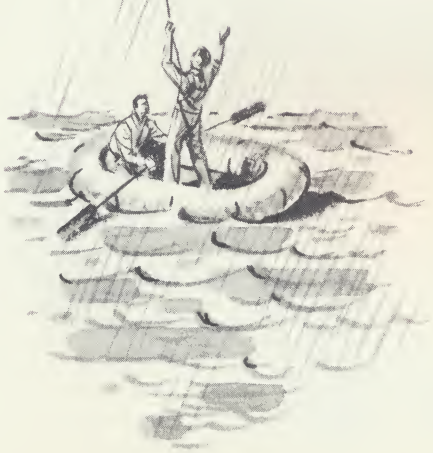


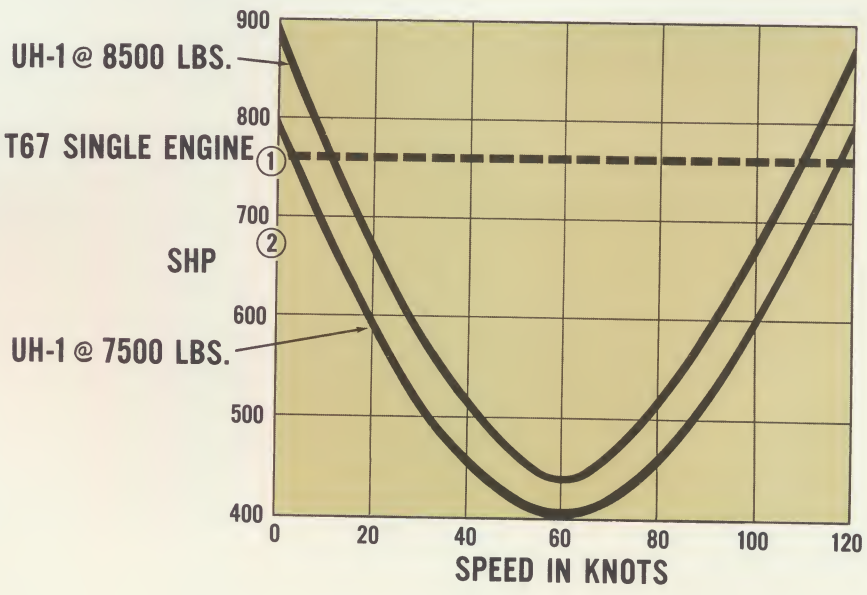
IMPROVED FLIGHT SAFETY

The demonstrated capability of the T67 to recover immediately and automatically from single engine failure assures a safe landing from any height-velocity condition.

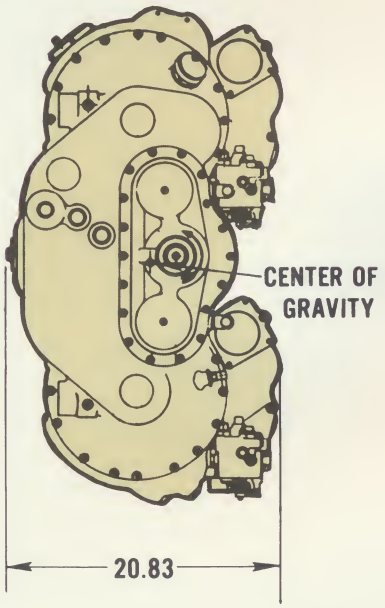
The excellent power margin available during single engine operation over the major portion of the flight spectrum is shown in the curve below. Points 1 and 2 on the curve show the power required to hover within "ground effect" at 8500 and 7500 pounds gross weight respectively . . . and explain why there are no height-velocity restrictions (Dead Man's Curve) for the UH-1D helicopter powered by the T67. At standard sea level conditions, this generous power margin provides a single engine rate of climb of 900 feet per minute.

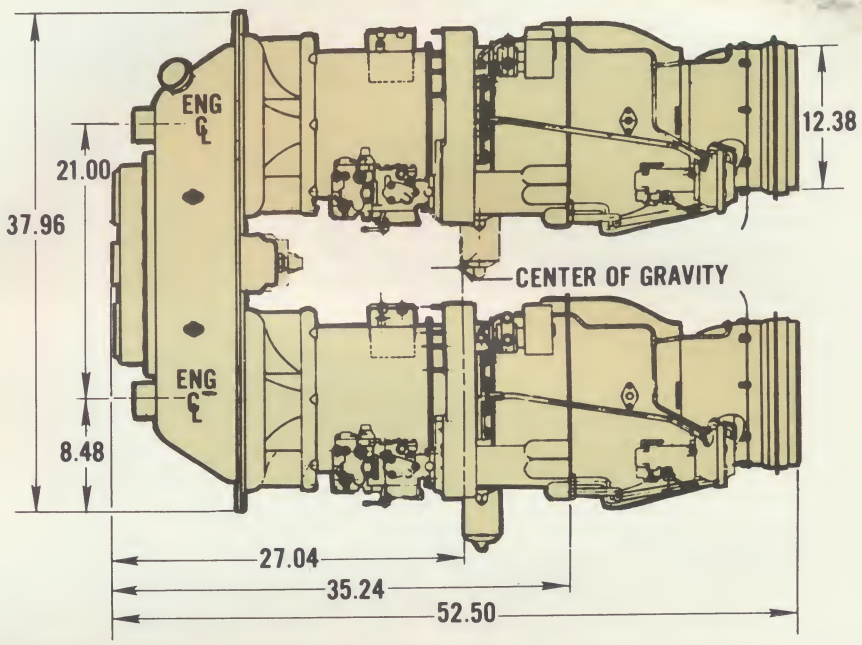
With the automatic power sharing system, the pilot is relieved of the duty of constantly monitoring and trimming power. This promotes greater safety by permitting the pilot to pay full attention to control of the helicopter, air and ground observations and other flight requirements.





PRESENT SIZE AND PERFORMANCE





SPECIFICATIONS

RATINGS

Military (30 Min.) . . . . . 1540 HP

Maximum Continuous . . 1300 HP

SFC (Sea Level, Mil.) 0.56

WEIGHT . . . . . 519 pounds

Powerplant weight includes fuel pumps and controls and torque matching devices; lubricating oil pumps and filters; ignition coils, leads and plugs; thermocouples and harness; and normal engine lines and fittings

OUTPUT DRIVE SPEED . . . . . 6600 RPM

ACCESSORY DRIVES PROVIDED

. . . . . Power Turbine Tachometers

. . . . . Gas Generator Tachometers

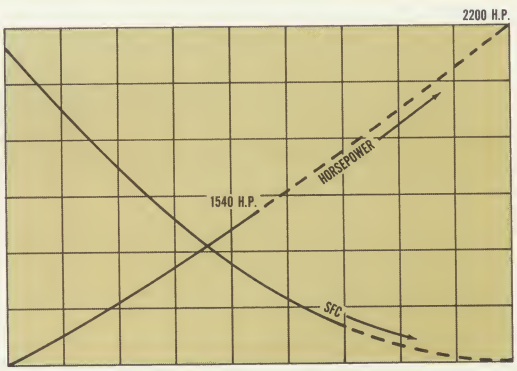
. . . . . Starter—Generators

. . . . . Spare Drive Pads

GROWTH POTENTIAL

TO 2200 HORSEPOWER . . .

The T67 was designed to accommodate growth up to 2200 horsepower at reduced fuel consumption. Both the low cycle temperature used for its current 1540 HP rating and the frame size were selected with growth capability in mind.



CONTINENTAL AVIATION AND ENGINEERING CORPORATION
12700 KERCHEVAL AVENUE • DETROIT, MICHIGAN 48215

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FORM NO. BT-1566

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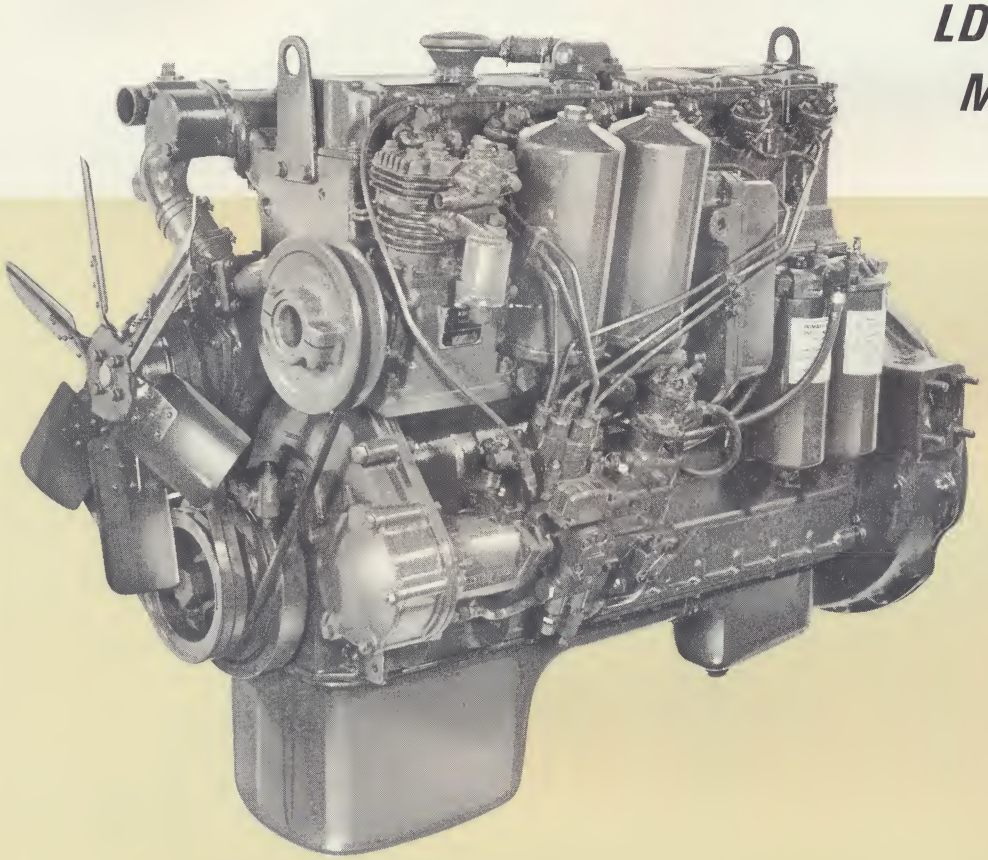
Continental's LD-465, LDS-465, LDS-465-VCR Military Engine Family



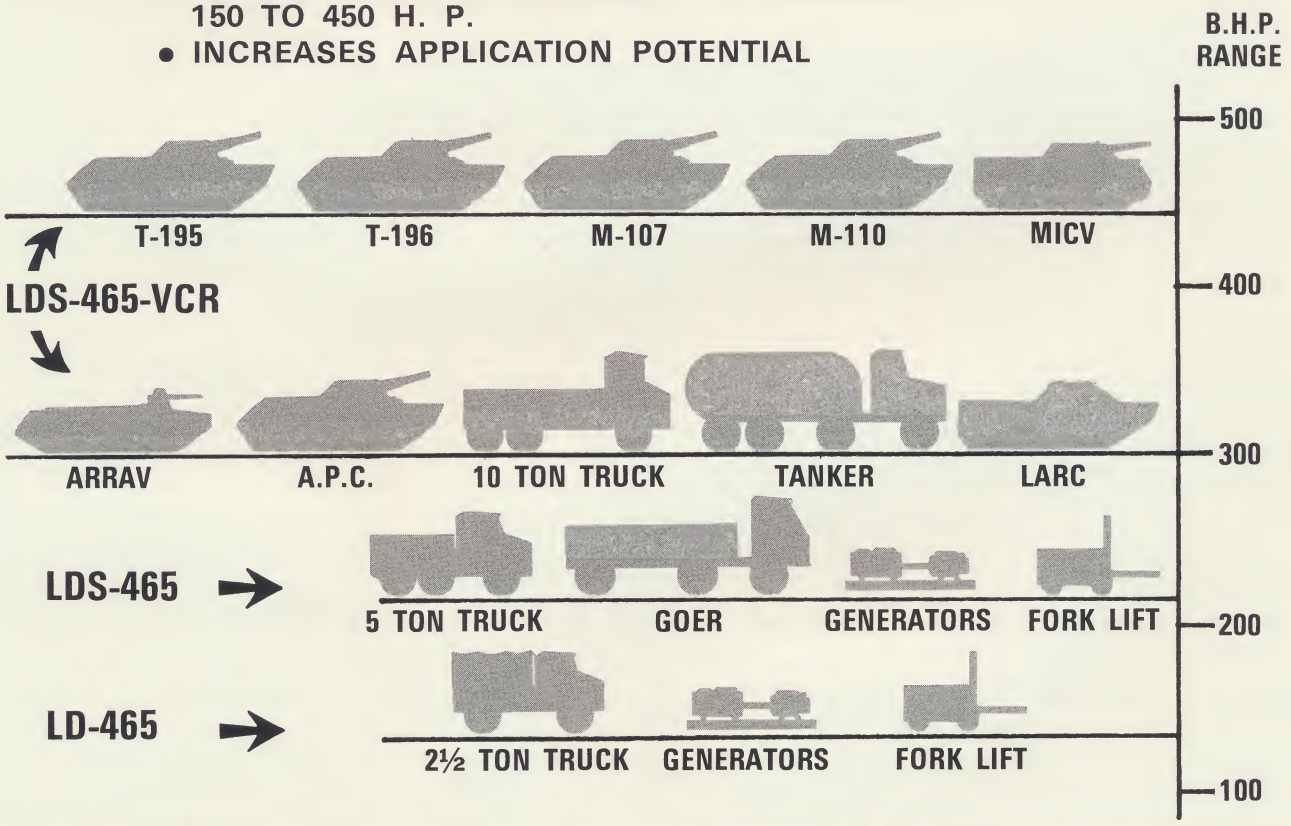
SPECIFICATIONS	LD-465	LDS-465	LDS-465-VCR
Displacement	478 cu. in.	478 cu. in.	478 cu. in.
Number of Cylinders	6	6	6
Bore	4.562 in.	4.562 in.	4.562 in.
Stroke	4.875 in.	4.875 in.	4.875 in.
Rated Speed	2800 RPM	2800 RPM	2800 RPM
Idle Speed	650 RPM	650 RPM	550 RPM
RATED POWER	**140 BHP**	**210 BHP**	**UP TO 450 BHP**
Compression Ratio	20.5:1	20.5:1	VARIABLE
Supercharging	NATURAL	TURBO	TURBO
Cycle	4	4	4
Weight	1500 lbs.	1561 lbs.	1600 lbs.

PARTS INTERCHANGEABILITY

	LD-465	LDS-465	LDS-465-VCR
TOTAL PART NUMBERS	313	320	320
TOTAL COMMON PART NUMBERS	313	305	282
TOTAL NEW PARTS	0	15	38
TOTAL PERCENT INTERCHANGEABILITY	100	97.5	90

THE APPLICATION OF VCR

- RETAINS ONE BASIC ENGINE FRAME
- CREATES FAMILY CAPABILITY TO DELIVER 150 TO 450 H. P.
- INCREASES APPLICATION POTENTIAL



Continental Motors Corporation

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